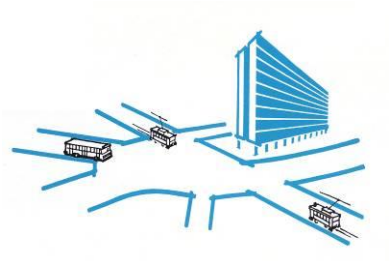

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THE "DOUBLE SLAB": FEATURES AND MEANING OF A RESIDENTIAL BUILDING TYPE IN BARCELONA MODERN MOVEMENT

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ABSTRACT

The paper is a part of a wider research developed by the authors since 2014 about the relationship between Modern Architecture in Barcelona and Milan between '40s and '60s . Here a particular building type the „double slab" has been investigated. It is based on a modular design system for housing quite popular among architects in Barcelona and throughout Spain. The "double slab" is very well typologically defined and for this reason got a strong identity but at the same time it is quite flexible and easy to be adapted to different styles which span from pre-modernism to the contemporary styles passing through the Regionalism.

Key words: Double slab, housing, Barcelona, Modernity, regionalism.

1. INTRODUCTION: MACHINES FOR LIVING

The issue of the housing is the core structure of the urban fabric, and as has been argued (Monestiroli, 1999, 124), it deals with a dialectic between constraints and freedom: it is an opposition between the necessity of closing a place in order to define a shelter and the will to broke the limits to make the outer world going inward. By a gestalt standpoint it is a balance of „solid" and „hollow" with the manifold hues that their mutual relationship can offer. A striking example at the urban scale is the long *„opening up of the block"* (Panerai et. al., 2004, 129) which drove the transition from the cadastral pattern of the compact city arranged by closed blocks to the model of the building as freestanding objects, deployed in the Modernist settlements. The big housing complexes like Narkomfin (Moscow, 1932) by Moisej Ginzburg, Le Corbusier's Unité d'habitation (Marseille 1952), Byker Wall (Newcastle 1970) by Ralph Erskine, Robin Hood Garden (London, 1972) by Alison and Peter Smithson or Mario Fiorentino's Corviale (Rome, 1981) represents a very particular side of this quest for „freedom" in residential housing. They merged the research for a spatiality with a big scale that should have been able to condense the complexity of the city in an *ante litteram* bigness.

The genealogy of these projects has probably two main roots: the first is the prototype of the big housing block for working class, whose origin, in turn, dates back to the barracks and to the hospital of the 18th Century in France (Teyssot, 1981, LXXIV). The problem of working class housing in the second half of 19th Century was considered, generally speaking, as a potential danger; in Great Britain the strategy advocated both by conservative and liberal was to extend the housing property to the members of labouring class who „deserved" the dwelling, limiting as much as possible the subsidized housing (Harloe, 1995, 38-42). In France, where the industrialization had a smaller scale, the problem of living condition of working class was frequently faced through repression. Living in the slum and being poor was considered "immoral" before unhealthy. The clearance of shanties and the redevelopment of the city was, according to middle class economic interests, the best way to fight poverty, as Haussmann's renovation actually did. Huge residential buildings in which a large amount of people could be concentrated would make easier correcting bad behaviors and stifling feasible rebellions as well. Charles Fourier's Phalanstery and Alexandre Lenoir's Family Palace (1855) was the best known prototype of this kind of dwellings. Their spatiality is partially based on the „machine for living" concept, and consequently on an order set by technique; this idea was originally conceived by Adolphe Lance in 1853 but Le Corbusier was the most famous theorist and exegete. The second root is the revolutionary modernist urban plans for the functional city. The dense and compact urban tissue was replaced by a new environment in which the space was flowing between the sober residential slabs designed by modernist architects. In the 19th Century cities the block not only arranged the open space but was the interface between the building and the urban tissue; in the Modern Movement, the buildings face directly a large scale cityscape cut through by the net of connections.

In such a context Le Corbusier's *Unité d'habitation de Grandeur Conforme*, metaphorically referred to the ocean liners and to the machine[1], promotes a concept of city highly innovative: the open space is conceived through the perception of the landscape and the scale is the main way to deal with the relationship between the buildings and human being. As has been stated Le Corbusier settled an evident relationship between its buildings and the landscape. He looked at the machines for living as a „vehicle" to focus on an inclusive concept of landscape in which the microscale of the buildings and its surroundings could merge with the largest one of the urban settlements (Cohen, 2013, 25).

2. BARCELONA AND MODERNITY

Le Corbusier's was highly influential on Avant-garde Movement that was growing up in Barcelona in the Thirties. He had a great cultural impact on the GATCPAC team (Grup d'Arquitectes i Tècnics Catalans per al Progrés de l'Arquitectura Contemporània) which promoted and supported the Ra-

[1] Le Corbusier was fascinated by the power of the machines: he considered the liners as the best expression of a technical rationality; he saw in them even an aestehtic meaning because one could grasp from their deck a innovative view of the landscape

tionalism since 1930. The striking outcome was the Macià Plan (1932) also known as plan for „New Barcelona" developed by GATCPAC and Le Corbusier. The plan took the name of the president of the Generalitat of Catalonia Francesc Macià met by Le Corbusier due to the effort of Josep Serts in 1932. Unlike others urban plans designed by him pretty much indifferent to the urban morphology, such Plan Obus where the new architecture literally overrode the Casbah, the Macià Plan pursued a relationship with the existent. The Cerda's Ensanche pattern was considered an inescapable pre-existence: the coast was redesigned as a whole waterfront taking as benchmark approximately three time the size of Cerdà block, so that the new expansion was planned following a module of 400 x 400 meters. Furthermore, the horizontal axis of Gran Via was kept as connecting element between the rivers Llobregat and, Besós (Busquets, 2005, 250-256).

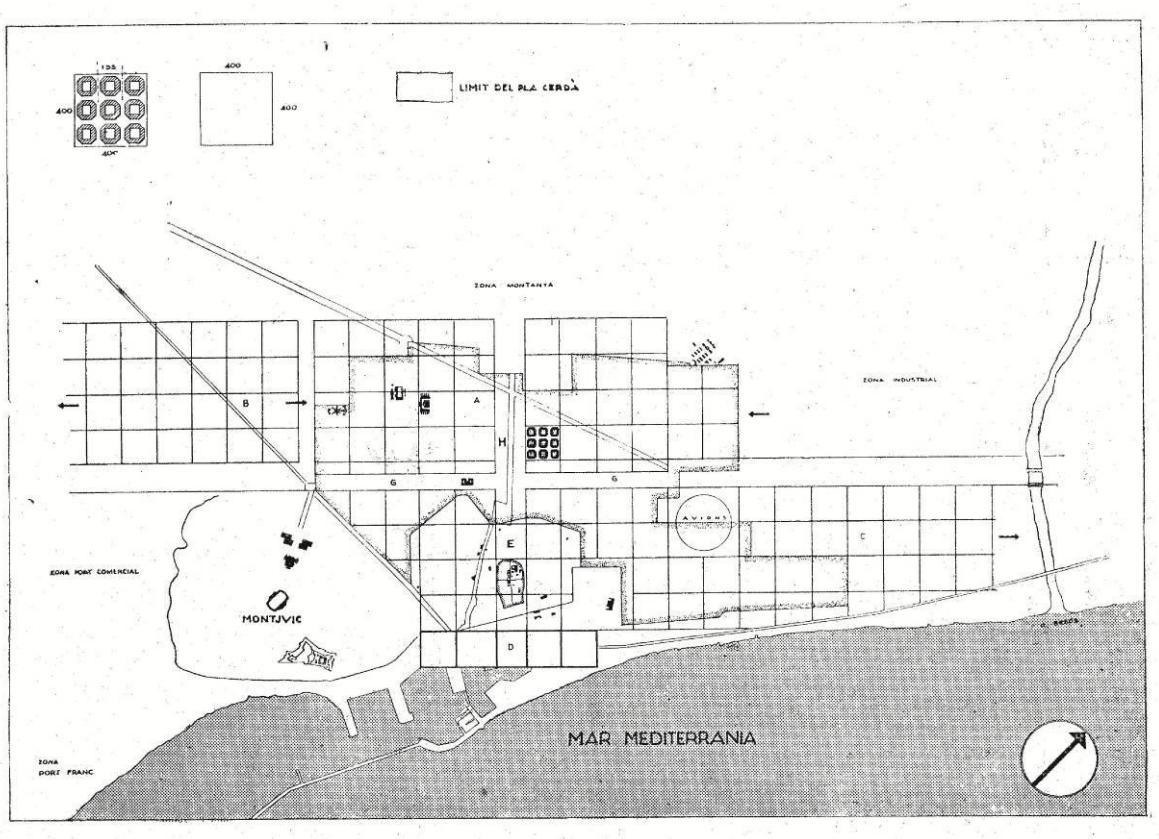

Fig. 1. New 400x400 meters. Plan Macià grid. Source: A.C *Documentos de Actividad Contemporanea* n. 13, 21.

There was a strong trust in the functional and aesthetic power of the new architecture, especially for what concerned the housing. We can argue that the „Casa Bloc" designed by Josè L. Sert (1932-1936) according to the shape of Le Corbusier's *redants* was not only a masterwork but a paradigm able to overtake the crowding of the historical city pursuing the modernist functional goals.

After the end of Spanish Civil War (1936-1939) Barcelona quickly increased in population and urban complexity taking the road that will lead the city to leap between the urban scale to the metropolitan one. Apart the expansion the most striking problem was the lack of housing due to the

heavy migration[2]: many people found accommodation in shanties or self-built recovery. In spite of a number of urban plans (Barcelona Country Plan 1953, First National Housing Plan 1954, Subsidized Housing Act 1957, Stabilisation Plan 1959) the city development was in the hand of speculators. The city government leaded by the major José de Maria Porcioles, who was in office since 1957 to 1973, let the real estate developers to move free, giving up any serious urban policy. The lack of planning and the strong structure both of the historical city and of the regular grid of Cerdà didn't allow large urbanistic operations[3] aimed to change radically the urban morphology. Indeed, it was more pragmatic design slight modifications of the urban tissue through well tested building type coherent with the historical rules of the city base on the aggregation of house of similar type (Solà Morales, 2008, 164).

One of them was the „double slab" (in Spanish *cuerpo linear doble)* a building type very effective in handling the high density housing problem. It is composed by two parallel slab spaced by a few meters' clearance so that the whole appears as single long and wide building characterized by wells of light or small patios. Indeed, the arrangement is based on a modular structure composed by a sequence of seven modules, made up by four apartments arranged in the shape of the section of a metal profile: so we can call it „H-shaped plan" in which the web is the stair volume and the flanges the dwellings. This type of plan is typologically prominent since it defines a primary and foundational configuration in Barcelona's residential architecture.

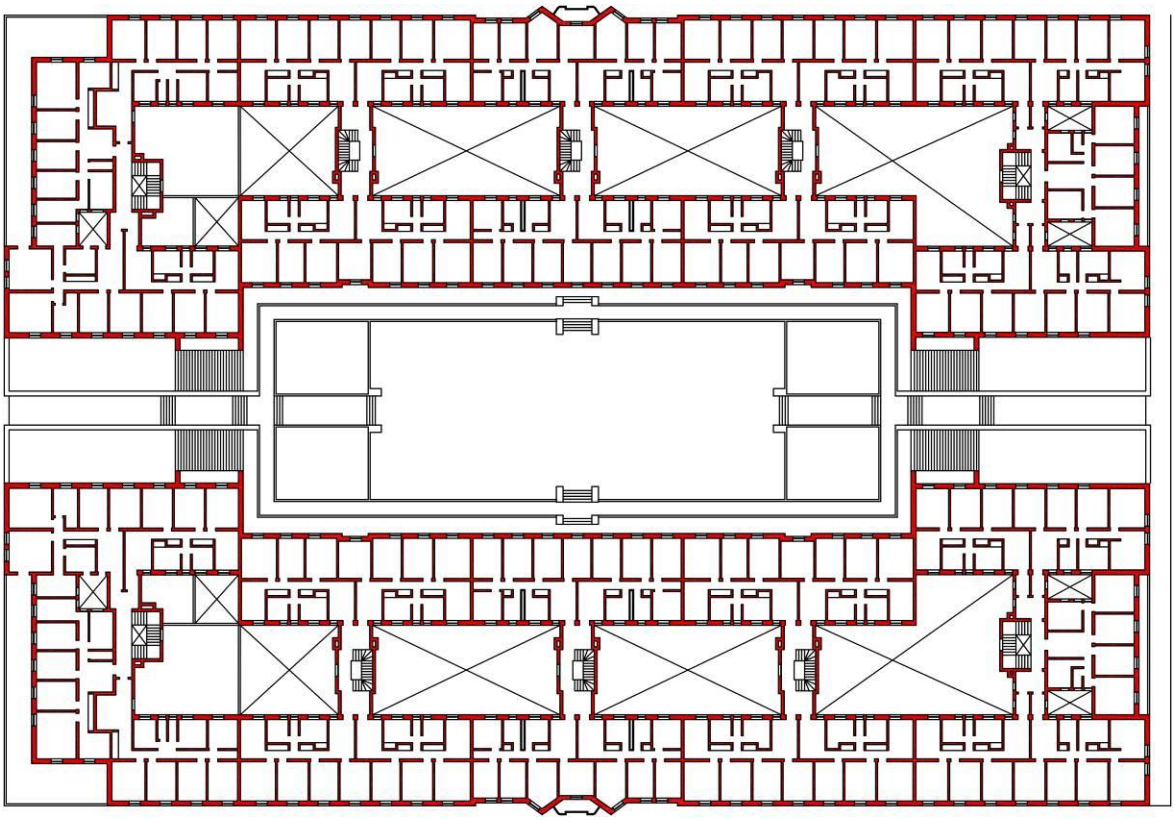

Fig. 2. S. De Zuazo Ugalde. Las Flores house, Madrid. Source: redraw by M. Lucchini.

[2] The top of migration occurred between 1961-1965 when the city and the Catalonia region hosted 800.000 people (Busquests, 2005, 269).

[3] The best known urban transformations like the Olimpic Village were planned after Franco's death with the return of democracy

The double slabs appeared as early as the 1930s in the Casa de las Flores (1930-1932) designed by Secundino De Zuazo Ugalde in Madrid. The architect in disagreement with municipal regulation enlarged the shape of the apartments and stretched the light-wells so that the relationship between dwellings and the whole building took the arrangement of the „H shaped" plan. He managed to sort out a long time problem of affordable house: the lack of light and ventilation due to the thickness of the buildings. Compared to the standard housing in the closed blocks, the Casa de las Flores apartment layout was highly rational pursuing in balancing the high density of dwelling (requested by the developers) and the consequent width of the building. The usual small light well of the traditional blocks was turned in a space „in between" with own morphological features. Beside the house fits an urban block, so that its figurative value works at the scale of the part of the city like to the superblocks of Red Wien. The Casa de Las Flores layout arrangement became a very popular pattern in residential architectural design in the Spain of the Thirties: it has been stated that foreshadows the future and the „sacred" „H shaped" block (Centellas et. al., 1999, 201). The less innovative aspect was the urban design: a typical large courtyard house with a language without outdated stylistic elements but still far from Modernism, likewise to the architecture built in Italy during the „Novecento"[4] period.

Later on some residential buildings designed in Barcelona under the influence of Modern Movement[5], which marked the years after the Spanish Civil War (1936-1939), achieved to merge the „H shaped" plan with the noticeable innovation of the urban tissue made of free-standing slabs.

One of them was El Mitre (1959-1964) a residential estate designed by Juan F. Barba Corsini. It is a" double slab formed" by two parallel buildings spaced about four meters apart and connected by stair volumes. El Mitre's considerable depth (21.70 meters) is created by the presence of the space between the two wings which, like a patio, provides light and air to the inward-facing apartments. The study of the circulation and the organization of the dwelling units makes it clear that El Mitre is typologically more complex than a „simple" double slab building. The typical floor plan is, in fact, composed of a sequence of seven „H shaped" modules formed by two units per side, each with a gross floor area of 123.5 square meters. These can accommodate a single dwelling or they can be divided into two sub-modules, or further subdivided into three units by placing a 46 square meter unit on the module's centerline.

The Mitre project although was committed by private developers (among which Barba Corsini itself) dealt with the affordable housing topic in accordance with the Ley de Renda Limitada keeping a high cultural profile. The constraint due to economic feasibility was merged with some ideological topics of Modernity. Le Corbusier's Unité is an evident suggestion especially both for what concerns the relationship between the building and the city and for the way of living. The two building shares the „new vision" pointed out in Verse un'architecture which take the urban landscape as context for the urban planning. In the El Mitre promotional brochure Barba Corsini highlighted the quality of the landscape as perceived from the building's interior (Monteys, Fuertes, 1998, 29-37).

There is the same „metaphysical" detachment of Le Corbusier's „mobile machinery", the generous dimensions of the windows in the living spaces allow inhabitants to visually „dominate" the urban landscape, projecting domestic space outside and establishing a direct link between people, the dwellings and the totality of the city (Giordani, 1987, 21). From this standpoint the Mitre building is a representation of Le Corbusier's concepts about the city and the housing. The ideological topic of the „machine for living" is recognizable partly in the accurate specification of the correct relationship between the human corporeity and the dimension of the dwelling. The El Mitre apartments are small but flexible (Monteys, Fuertes, 1998, 57). The dwellings' small floor areas, in accordance with the 1953 law, lead not only to enhance the collective functions (laundry, nursery, shops) but also to develop mixed uses of residential space, a device that is one of the bases of the flexibility principle.

[4] *Novecento* was an artistic movement founded at Milan in 1923 intended to continue the tradition of the classical art renovating it in the meantime. The Movement was officially supported by Fascism. For what concerns architecture a simplified language of classical orders, was the most remarkable feature.

[5] In Architectural English literature Modernism means usually Modern Movement. For what concerns Barcelona and the Catalan architecture Modernism stands also for Modernisme that wasthe architectural and artistic movement corresponding to Art Nouveau.

This last one had been tested by Le Corbusier in Petit Mason on Lemano Lake (1925), but the main reference is of course Gerrit Rietveld's celebrated Schroeder house.

Fig. 3. F. Barba Corsini: Mitre Building, Barcelona.Façade on Ronda del Mitre. Source: Photo by M. Lucchini.

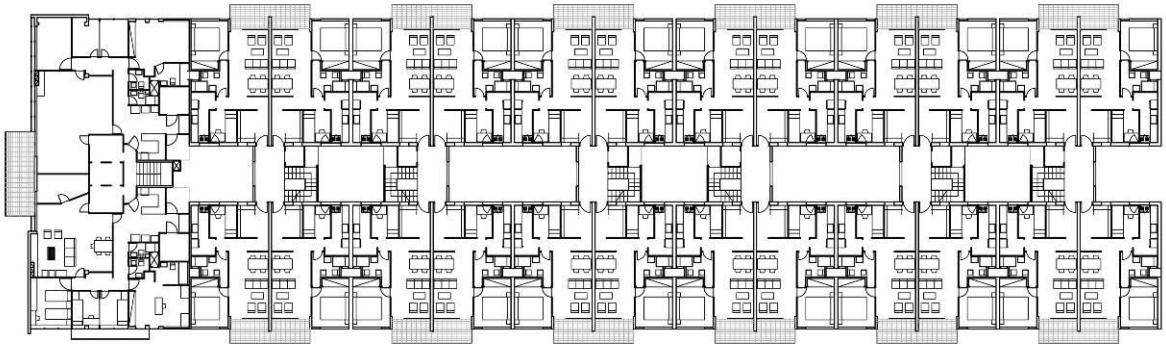

Fig. 4. F. Barba Corsini: Mitre Building,Barcelona. Typical plan. Source: Redraw by M. Lucchini.

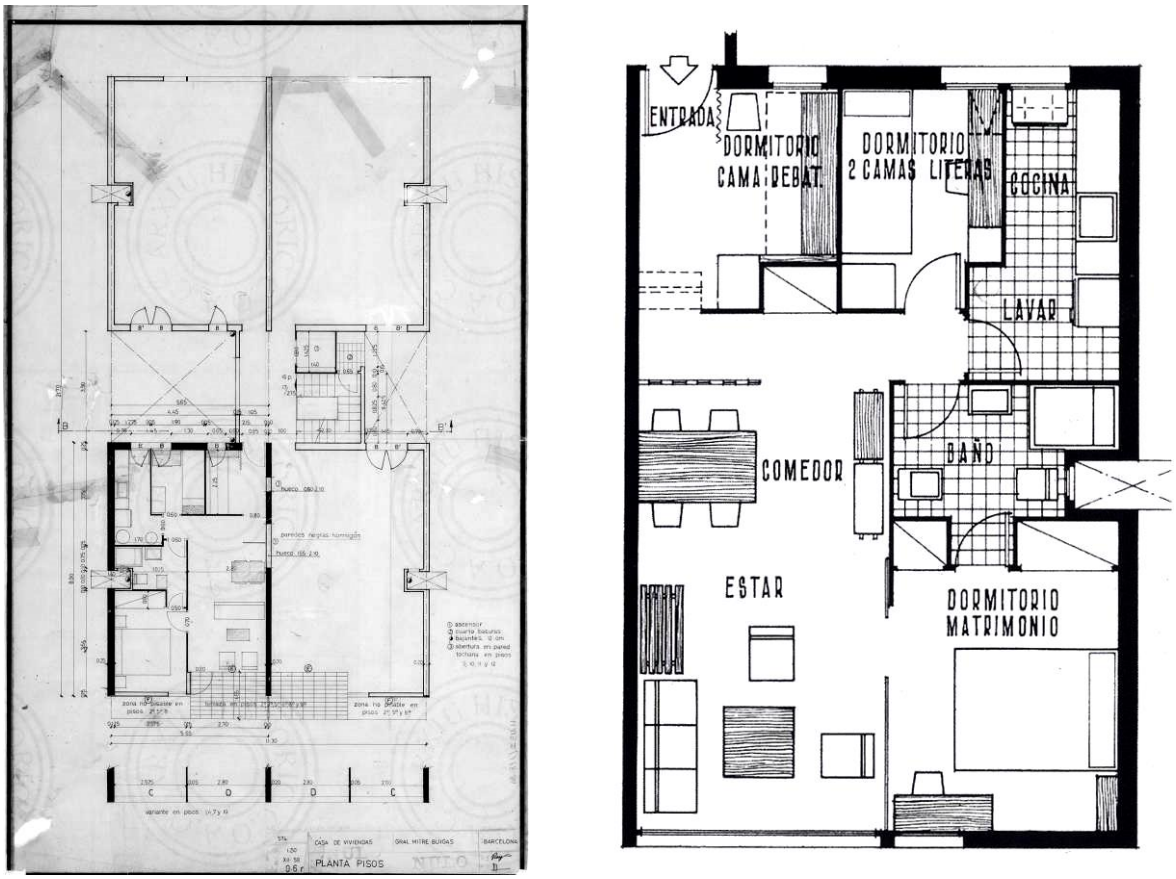

Fig. 5. F. Barba Corsini Mitre Building, Barcelona. H Shaped module plan and apartment for a four-member family. Source: COAC Archive.

Apart the movable walls the flexibility core point is the overlapping of different functions. Barba Corsini didn't have the quantity of space of a villa and had to design apartments for very different users which span from childless couples to a family with three to five children. It is evident that such a significant difference in the floor areas available to each resident required to mix functions. While the position of the master bedroom on the exterior facade remains invariable, like that of the bathrooms and kitchens, the space on the interior façade between the kitchen and the entrance can vary to become the dining room or a bedroom for one/three people. In the former case it is a conventional bedroom, but in the latter it hosts niches for beds and other furniture thus obtaining a minimal space. The entrance intersects the sleeping area creating a „pass-through" bedroom where an accordion wall separates the sleeping niche from circulation space. The movable wall also appears in the master bedroom; in some cases, the partition between bedroom and living room can slide to generate the fusion between these two spaces creating a heightened perception of space. The Mitre was designed and built in the Spain of the Fifties when the political power was held by the dictatorship of Francisco Franco (1892-1975); it was a fascist-inspired regime that lasted until the dictator's death. Despite the fact that the *Caudillo*[6] had heavily repressed everything that appeared to be progressive, demonizing both architects and modern artists and the thought and work of Le Corbusier, some architects engaged a hard struggle that led to a period known as

[6] *Caudillo* in spanish means a political and militar leader who often becomes a dictator.

„second modernity"- started in 1951 with the Grupo R[7] which „constituted the central nucleus of architectural renovation" (Busquets, 2005, 322) and continued with Realism and Barcelona School.

Further on, after the disappearing of the group, the most innovative trend was driven by Oriol Bohigas. He widened the theoretical perspective addressing the catalan architectural design to the search for the essence of the realm (Bohigas, 1962, 17-20) encouraging architects to avoid "the transcendence" and focusing on what belongs to contingence, first of all housing. The reference point was the Italian architect Ernesto Nathan Rogers leader of BBPR and director of the journal Casabella. He argued that architectural and urban design should look for a balance between innovation and tradition, overlapping "the new" with the elements of "the past", still coherent with the modern times. (see Lucchini, Jaen, 2018) Bohigas made himself the leader of this interpretation of the Modernity in Barcelona starting a research line called according to Helio Piñon „organico regional" (Piñon, Català-Roca, 1996, 25). The MBM office led by him, together with Martorell, and Mackay developed what Manfredo Tafuri (referring to the Italian context) would call a "talking with the environment" (Tafuri, 1985, 54). Bricks and exposed concrete shaped the architectural volumes so that the expression alluded to the Catalan building tradition and to the Modernism of the early twentieth century. In the field of housing design, the architects paid obviously attention to the H shaped plan and to the double slab.

Fig. 6 MBM. Housing building in carrer Pallars. Photo by M. Lucchini.

[7] The Grupo R (1951- 1961) gathered architects who wanted the modern architecture be known in Spain. Martorell, and Bohigas were among the youngest members, while the oldest were architects like Coderch and Moragas i Gallissà. Remarkable was the presence of Josep Maria Sostres (1915-1984) considered the intellectual of the group (Rodríguez, C., Torres 1994).

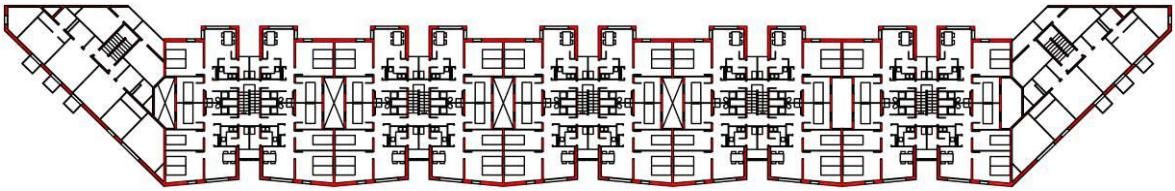

Fig. 7. MBM. Housing building in carrer Pallars. Typical floor plan. Source: Redraw by M. Lucchini.

The housing complex in carrer Pallars (1958-61) was built to host metalworkers and their families; it shows a composite layout invisible in the elevations: the stairwells are backward so that between each living unit there is a recessed joint which makes the building like a sequence of six small towers. Indeed, the typical plan is arranged with H-shaped modules in which the web (corresponding to the staircase, without the lift) has been highlighted giving shape to the aforementioned joint.

In a such a way the space between the two „flanges" becomes a „slit" that gives the façade a rhythm stressed «by the sober exposed brickwork […] reinforced by the zigzagging outline (Gonzàlez, Laceusta, 2002, 61). As has been stated, this is a review of the Cerdà block and at the same time a criticism of the size of those blocks (Pierini, 2008, 60). The standard apartments, of just 60 square meters, is an exercise in distributive ability because in such a small area the designers get two or three minimal bedrooms with essential furnishings: the entrance leads to a corridor that turns around the cooking area, it distributes the rooms and ends up in the very compact dining-living room. Originally the project involved all four sides of the block located in the Poblenou district, an industrial area, thus taking up the settlement principles of the Cerdà Plan. As a matter of fact, only one side was built closed on the corners by two oblique facades that shape the *chaflan* space

Fig. 8. MBM. Housing building in carrer Pallars. Source: Photo by M. Lucchini

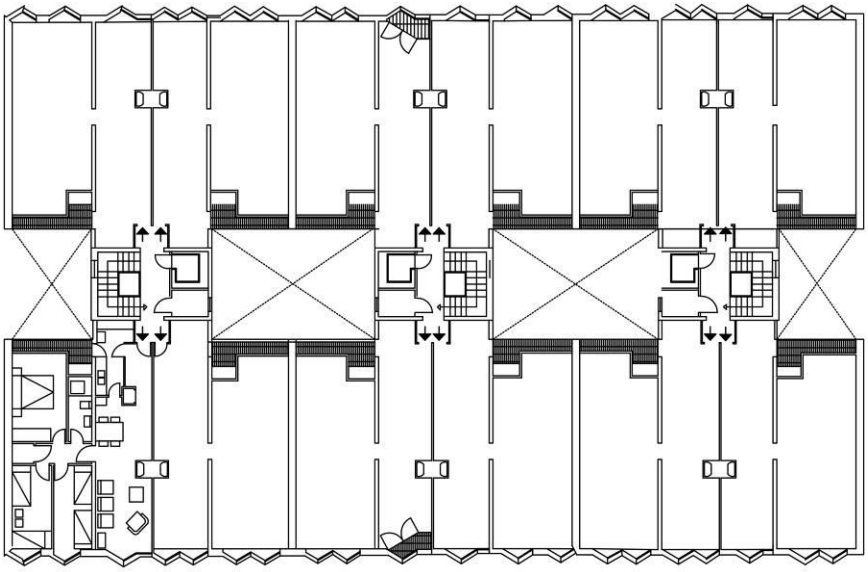

Fig. 9 MBM. Housing building in carrer Pallars. Typical floor plan. Source: Redraw by M. Lucchini.

Further on the MBM designed another housing building along the Avenida Meridiana (1959-65); it I a double slab as well, arranged in three modules, this time with the web parallel to the street façade and a remarkable thickness of the building. Each module contains four apartments arranged in strips perpendicular to the façade: immediately after the entrance one finds the wet area with a „pass-through" kitchen that leads to the centre of the house. The building is twelve storeys high and the proportions give emphasis to its solid mass setting a correct relationship with the wide space of Avenida Meridiana. The façade is treated shaping the openings as „*projecting angular double galleries*" (Gonzàlez, Lacuesta, 2002, 56), shaped in order to have a plastic play of shadows which in turns highlights the brick texture.

The H-shaped type and the double bodies proved to be particularly versatile. If the Mitre and the Avenida Meridiana building were located in semi-peripheral areas, the Mediterráneo building (1964-68) designed by Antoni Bonet Castellana in Carrer Consell de Cent, is placed in the heart of the Ensanche and was intended for high standard housing and the real-estate market. Like in the Mitre the four H shaped plan modules define as much residential units. The module hosts four apartments of 146 square meters each, with double bathroom and a large living room which becomes the focus of the layout arrangement, due to its central position. Compared to the Mitre the living area is sharply separated from sleeping zone but the counterpart is a lack of flexibility.

The Mediterraneano is a ten storeys building which got an urban meaning coherent with the Ensanche square grid system and *„represents an effort to enhance the Cerdà Plan"* (Álvarez, Roig 1996, 170).
The double slab closes one of the four sides of the block and the 28 meters' thickness of the building give a high visual density perfectly related to the cityscape of the context. The prominent characteristic is the alternative to the *chaflan*: Bonet Castellana back warded one of the shortest side of the two parallel slabs in order to obtain, on the corner between Carrer Consell de Cent and Carrer Comte Borrel, two different visual planes, thus getting an alternative to the usual chamfered corner and enhancing the spatial richness of the block as well.

Fig. 10. A. Bonet Castellana. Housing building Mediterraneo. Façade on carrer Consell de Cent. Source: Photo by M. Lucchini

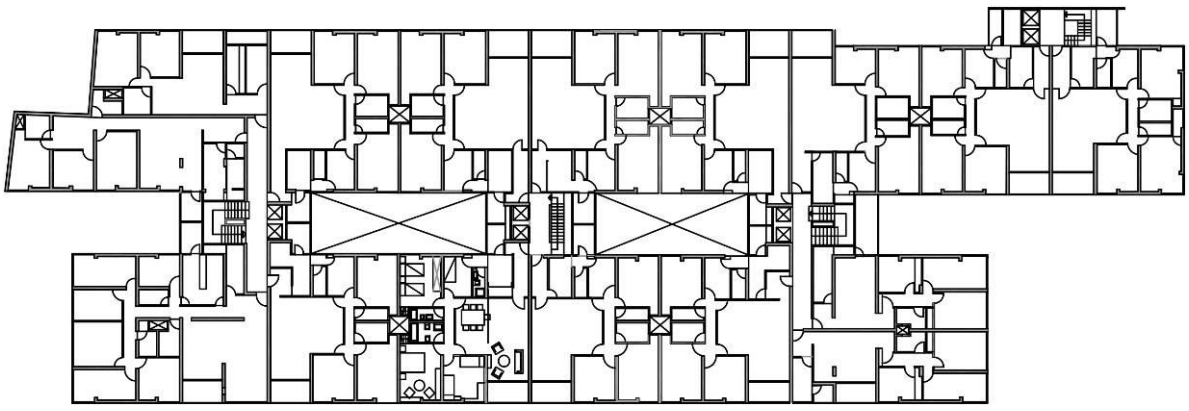

Fig. 11 A. Bonet Castellana. Housing building Mediterraneo. Typical floor plan. Source: Redraw by M. Lucchini

The double slab type has been relatively frequent in residential projects built in several Spanish cities. The advantages are the high density, the compactness of the form, and the flexibility. The modular system controls the „parti" of the plan arrangement so that the type can fit either to a very small plot like the residential building in calle Rossellon di Donato Folch (1964) and a large site that stretches over a whole block. Furthermore, there are case, like Mitre, where the buildings get an urban meaning, working as a „horizontal skyscraper".

The house designed by Julio Cano Lasso in Madrid in Calle Basilica (1966-1974) confirms the flexibility and the urban value of the double slab type building which works as an urban border concluding the block towards the namesake street. The usual pattern of H-shaped modules is slightly modified moving the toilets towards the internal front so that the patio and the kitchens are aligned to the staircases and became a "bridge" between the two slabs. The elevation layout is rhythmic and severe, barely softened by the skin made of bricks, punctuated by the bow-windows gathered two by two and placed near the stairway in order to mark the transition between the modules.

The patios are of two different sizes: the larger one is twice as large as the small one with a square plan. They are large enough (7.5 x 15 meters) to allow collective use: "*the recovery of the patio block gives relief to the exaggerated density. It is conceived as a semi-public space, isolated and protected from the aggressiveness of the street*" (Cano Lasso, 1980, 76) . The larger size of the patios enhances the value of the inner open space of the building turning the double body into an hybrid between a big urban block and a courtyard house

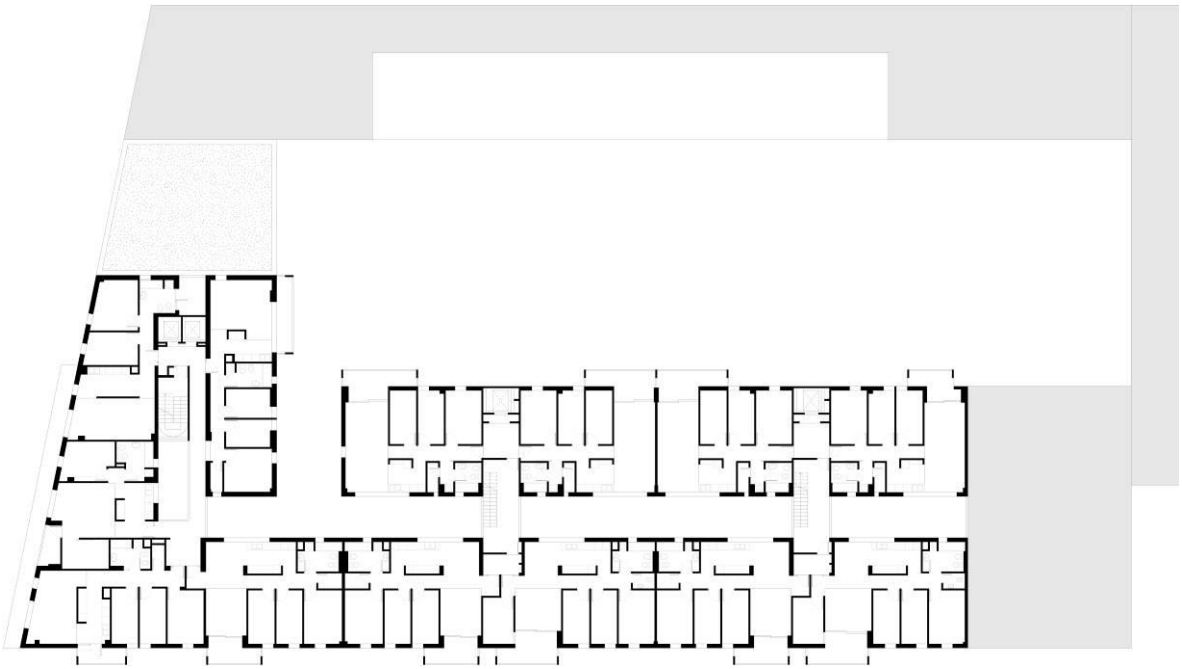

Fig. 12. Flexo Arquitectura. VPO Social Housing building at Colonia Castell (Barcelona). Typical floor plan. Source: Redraw by M. Lucchini

Among the many contemporary cases we can mention the complex by Tabuenca, Leache, and Saralegui at Berriozar in the Spanish region of Navarra (2001) (Tabuenca, et. al, 2001,138) and in Colonia Castells, in the outskirts of Barcelona, where we find a building for 58 apartments called VPO Social Housing designed by Flexo Arquitectos (2006-2009). In the latter case the double slab is perfectly inserted in a medium-sized block presenting a higher body that bring to a conclusion the corner. The languages of both buildings are obviously updated with facades in concrete panels that define a vertical scans rhythm.

3. CONCLUSIONS

The double slabs building have to be understood in the frame of Modernity. But the finest way to analyse them is probably the intertextuality: as different texts stands in interconnections each other to produce meaning (Nordquist, 2003) they convey different architectural meaning.

They had been designed to face a practical problem that was the handling of very thick residential building in deep plots. This gave them a typological meaning and by this standpoint they have stand the test of time. Their longevity is due to their unquestionable belonging to an urban architecture. They were flexible enough to intercept the struggle between the boundary and his break which marks the development of the space in the Modern and contemporary age as we have seen at the beginning. In fact, they gave proof of a good fitting both to the traditional urban tissue made with blocks and to the district composed by freestanding buildings. Furthermore, the structure of the H-shaped plan, which belongs to the local cultural environment of the Spanish cities, found a new perspective in the Barba Corsini's Mitre that is an overlapping between Le Corbusier's concept of the Unitè (that is to say the metaphor of the ocean liner) and the urban fabric of Barcelona. In turn the Le Corbusier concept contains an idea of squeezing the living space (as happens in the vehicle cabins which fascinated Le Corbusier) but Barba Corsini interpreted this topic freshly by means the flexibility principle. The double slabs seemed to set a rule and immediately broke it, and this is a striking feature of the modern time.

A further important feature of the „double slab" buildings is their capability to maintain a typological identity beyond linguistic differences. Among the Mitre, the building in Calle Pallars or the more recent VPO there is a huge expressive difference. However, they all belong to the spirit of Barcelona that connects architecture to the people building an urban space in which one can identify the "genius loci". Like other long-lasting urban buildings, double slabs are a continual rewriting of what has already done; it is, after all, one of the most consistent themes of architecture that gives it a conceptual *firmitas* able to make the places in which we live resilient.

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